



# A STUDY TO DEVELOP A PROCESS OF MATRIX SET FOR A NEW PRODUCT

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## ABSTRACT

**Aim:** The purpose of this study was to propose a framework of critical success factors, metrics, and tools and techniques for implementing metrics for each stage of the new product development (NPD) process.

**Design/methodology/approach:** To achieve this objective, a literature review was undertaken to investigate decades of studies on NPD success and how it can be achieved. These studies were scanned for common factors for firms that enjoyed success of new products on the market.<sup>1</sup>

**Findings:** The paper summarizes NPD success factors, suggests metrics that should be used to measure these factors, and proposed tools and techniques to make use of these metrics. This was done for each stage of the NPD process, and brought together in a framework that the authors propose should be followed for complex NPD projects.

**Research limitations/implications:** Several different research directions could provide additional useful information both to firms finding critical success factors (CSF) and measuring product development success as well as to academics performing research in this area. The main research opportunity exists in implementing or testing the proposed framework.

**Practical implications:** The framework can be followed by managers of complex NPD projects to ensure success.<sup>2</sup>

**KEY WORDS:** Product Development, Product Life Cycle, New Product Development, New Product Deployment.

## INTRODUCTION:

New product development is a task taken by the company to introduce newer products in the market. Regularly there will arise a need in the business for new product development. The existing products may be technologically outdated, one may have different segments to target or one needs to cannibalize an existing product. In such cases, New Product Development is the answer for the company.

### Aim:

To study the product development process as a whole and understanding the steps involved.

### Objective:

the objective is to understand the steps involved in the process of new product development.

## REVIEW OF LITERATURE:

The new product development (NPD) emphasizes the importance of introducing new products on the market for continuing business success. It's contribution to the growth of the companies, its influence on profit performance, and its role as a key factor in business planning. New products are responsible for employment, economic growth, technological progress, and high standards of living. Therefore, the study of NPD and the processes through which they emerge is important. Incorporate these learnings into their existing companies' knowledge.<sup>3</sup>

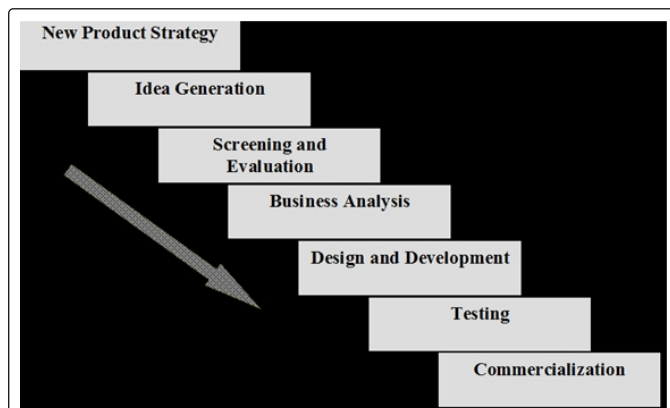


Fig 1 : Process of New Product Development

The stages of the model are as follows:

- i) **New Product Strategy:** Links the NPD process to company objectives and provides focus for idea/concept generation and guidelines for establishing screening criteria.
- ii) **Idea generation:** Searches for product ideas that meet company objectives.
- iii) **Screening:** Comprises of an initial analysis to determine which ideas are pertinent and merit more detailed study.
- iv) **Business Analysis:** Further evaluates the ideas on the basis of quantitative factors, such as profits, Return-on-investment (ROI), and sales volume.
- v) **Development:** Turns an idea on paper into a product that is demonstrable and producible.
- vi) **Testing:** Conducts commercial experiments necessary to verify earlier business judgments.
- vii) **Commercialization:** Launches products.<sup>4</sup>

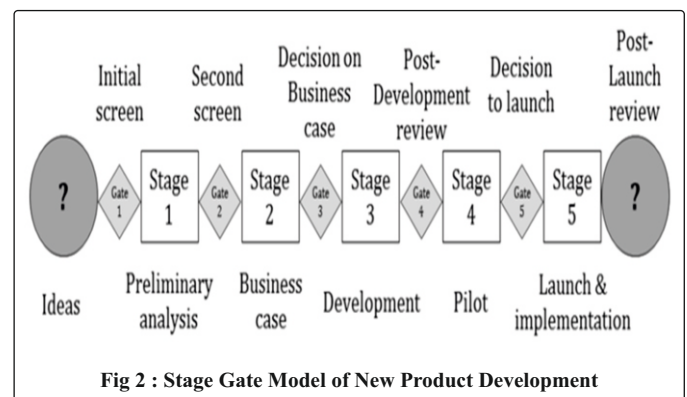


Fig 2 : Stage Gate Model of New Product Development

The model divides effort into distinct time-sequenced stages, separated by management decision gates. Multi-functional teams must successfully complete a prescribed set of related cross-functional tasks in each stage prior to obtaining management approval to proceed. The framework of the stage-gate process includes work-flow and decision-flow paths, and defines the supporting systems and practices necessary to ensure smooth operation.<sup>4</sup>

Stage	Critical Success Factor	Metrics	Tools and Technique
New Product Strategy	Clear Strategy	Return on Investment	Financial Analysis
	Well Communicated Strategy	Degree of Communication	Balanced-scorecard as a Communication Tool
Idea Generation	Customer Focused Idea Generation	Number of Customer Focused Ideas Generated	Lead User Methodology
			Ethnographic Approach
Screening and Business Case	Up-Front Homework	Expected Commercial Value (ECV)	Financial Method of evaluation
		Net Present Value (NPV)	
		Internal Rate of Return (IRR)	
		Productivity Index (PI)	
Development	Speed	Development time	Team Cohesiveness
	Customer feedback	Degree of functional integration	Dynamic Time to Market
		Degree of team commitment	Degree of Parallelism
		Concurrency of activities	
		Degree of design effort on real customer priorities	
Testing	Product Functionality	Product Performance	Validation Testing
	Customer Acceptance	Customer-Perceived Value	User and Field Testing

Fig 3: Success factors for each

Over the last two decades, several studies have examined the determinants of NPD success and identified many factors that distinguish successful products from unsuccessful ones.

Factors that are necessary and guarantee commercial success are termed as Critical Success Factors (CSF): it is imperative to reflect on how one can benefit from each and how one can translate each into an operational aspect of the NPD process. In fact, it is even suggested that NPD itself is a CSF for many organizations. Given that this is now a well-known fact, the idea is to determine what factors in NPD are essential for success, and how to measure the extent of this success. The challenge is to design a process for successful product innovation - a process whereby new product projects can move quickly and effectively from the idea stage to a successful launch and beyond.<sup>5</sup>



Fig 4 : Formula for NPD success

#### Balance:

Your process should be Flexible to respond to market changes, but with enough Structure to provide needed discipline for great project execution.

#### Transparency:

You should have all cards opened and fuse trust and openness to the projects core. Keeping all important aspects of the process known to the project group and management is decisive for the understanding of the common goals.<sup>6</sup>

#### Focus:

You know you are managing focused process when there is little frustration as all participants know what they are to deliver and at what times. Project members and management feel motivated as a result of working towards the same goals and solving compelling challenges.

#### Engagement:

With enough clarity and focus people will be motivated to perform their tasks and assignments.

“Everyone on-board” principle does not only lead to reduced time to market, but also increased ownership, performance and learning.<sup>7</sup>

Examples for product strategy:

#### Product Development Strategy for McDonald's:

- i) **Permanent Product Strategy:** McDonald's features several products on their menu that are permanent and do not change. Examples of this include their basic hamburger and cheeseburger, the Big Mac and the Quarter Pounder.
- ii) **Temporary Product Strategy:** In addition to its permanent product offerings, McDonald's regularly develops temporary products. The McRib, for example, is a product that is offered only seasonally.
- iii) **Local Product Development Strategy:** In addition to developing new

products for local markets, McDonald's will also use an adaptation strategy whereby they take a product and modify it to fit local tastes. In India, for instance, the Big Mac has been modified into the Maharaja Mac which contains no beef, in keeping with local diets<sup>8</sup>

#### OBSERVATIONS:

New product success still remains the critical challenge for companies. Many companies are aware of the major role new products must play in their future and quest for prosperity: companies are constantly searching for ways to revitalize, restructure and redesign their NPD practices and processes for better result. This framework proposes that to achieve success, NPD firms should have a clear and well communicated new product strategy. These firms should have well defined new product arenas along with long term trust, with clear goals.<sup>8</sup>

#### RECOMMENDATIONS:

This paper explored and analyzed the NPD process and attempted to identify ways in which firms can improve their performance when developing new products, mainly through the study of factors that are critical to success. These factors were identified through an extensive study of the practices and performance of successful firms presented in the NPD literature. The CSFs which have been described in the literature are generally defined for the overall development process, rather than specifically addressing each stage. To overcome this problem, this paper sought out CSFs for each stage of the process. Presumably, no other study to date has developed such a framework, which can be crucial for NPD success.<sup>9</sup>

#### CONCLUSION:

New product success still remains the critical challenge for companies. Many companies are aware of the major role new products must play in their future and quest for prosperity: companies are constantly searching for ways to revitalize, restructure and redesign their NPD practices and processes for better result. This framework proposes that to achieve success, NPD firms should have a clear and well communicated new product strategy. These firms should have well defined new product arenas along with long term trust, with clear goals.

Successful businesses and teams of NPD have a dedication towards the voice of the customer. It is critical that firm should gather as many ideas as possible and a large number of these should come from customers so that the firm can be in a position to design and develop winning new products. Up-front homework prior to the initiation of product design and development is found to be a key factor in a firm's success<sup>10</sup>

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